

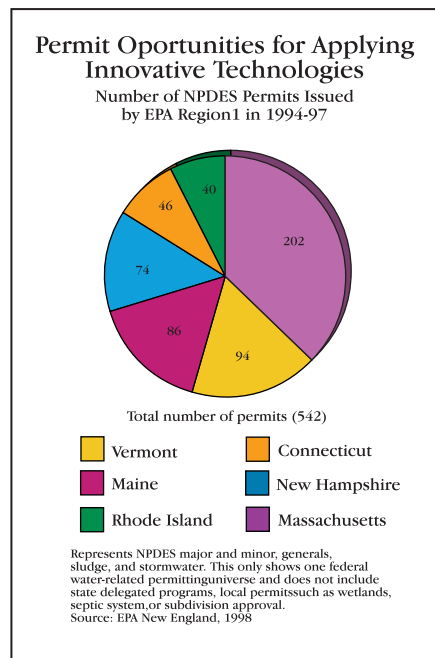
## Section III.

### Assistance Dealing With Regulatory & Institutional Barriers

There is much that government can do to assist the environmental technology industry in bringing emerging, innovative technologies to market. By reducing the often contradictory and burdensome regulatory and institutional barriers facing the industry, EPA and the states working together can make it easier for technology developers to penetrate new markets and make environmental regulations work to promote new technologies. These efforts can be categorized into four areas:

- 1) Innovative permitting efforts
- 2) More efficient and flexible “approved methods”
- 3) Federal & Interstate Regulatory Coordination
- 4) New Frameworks

#### III.1 Innovative Permitting Efforts



Regulated facilities are often interested in trying innovative environmental technologies but the uncertainty, inflexibility, or the long lead times of getting permit approvals, often deter the adoption of new systems. Over the last few years, however, efforts at both the state and federal level have provided quicker turn-around times, increased flexibility, and have ultimately provided more confidence within the regulated community to try new technologies.

#### **Cytec**

Cytec Corporation, a specialty chemical manufacturer, was anticipating installing new state-of-the-art manufacturing equipment, replacing and upgrading existing equipment, and changing material formulae and product process lines. Under existing regulations, however, this would require a separate permit for each activity within the facility. To solve this problem, EPA Region I, in partnership with the CT Department of Environmental Protection, developed an innovative Title V Clean Air Act permit under the national Pollution Prevention in Permitting Pilot (P4) project.

The goal of this project was to develop a flexible permit with the current regulatory framework of Title V, so as to allow Cytec to implement pollution prevention and operational upgrades without reopening and modifying its existing permit. The permit provides conditions that reduce or eliminate the level of permit review and processing by using facility-wide applicability limits, conditional pre-approved applicable requirements, and self implementing compliance mechanisms. This results in a permit that anticipates and adapts to the needs of the facility and reduces the time associated with processing permit modifications. More importantly, this project will identify opportunities and barriers to integration of pollution prevention, as well as develop a model for operational flexibility that can be used in the development of national rulemaking efforts.

### **Cellini Purifications Systems - Zero Discharge Technology**

EPA Region I and the Massachusetts Department of Environmental Protection collaborated in the hazardous waste permitting program to facilitate the use of a process that eliminates the discharge of toxic chemicals from metal finishing facilities. A new technology developed by Cellini Purification Systems of Ludlow, MA utilizes a flash distillation and enclosed evaporation technology in conjunction with a patented liquid/vapor separation process to recycle water and chemicals which, if used in certain applications, can result in zero discharge.

A major regulatory roadblock facing the technology was the potential requirement for federal permitting for each installation as a hazardous waste treatment unit. After careful analysis of the technology and its performance, both EPA and DEP agreed that this technology when properly installed and operated, is capable of meeting the federal criteria for being a totally enclosed treatment unit that will prevent the release of any hazardous waste into the environment. As a result, this technology can be exempted from federal permitting requirements in New England although users may still need to comply with hazardous waste generator management regulations.

### **Training Permit Writers, Environmental Inspectors and Enforcement Staff to Incorporate Innovative Technologies**

Under a grant to the Massachusetts Department of Environmental Protection, training materials on the use of pollution prevention technologies were developed as part of a compliance effort from a multi-media or “whole-facility” perspective. Targeted to federal and state permit, inspection and enforcement staff, a key goal of the training was to improve communication across government and industry lines.

## **III.2 Federal and Interstate Regulatory Cooperation**

Innovative technology vendors have realized for years that getting multiple state approvals can be costly and dampen the adoption of new technologies. However, states still require the ability to control the permitting decisions and tailor them to meet the specific requirements for each state. To solve this problem requires creative and flexible programs that ease the burden on vendors seeking state approvals, while still providing the states the autonomy to customize their regulatory approaches to best fit the needs of their constituents.

### **The New England Interstate Regulatory Cooperation Project**

This project is an innovative federal/state partnership designed to promote the acceptance of new environmental technologies in New England and to improve the competitiveness of regionally-based envirotech companies. Under the direction of the Region’s Center for Environmental Industry and Technology, the project provides an opportunity for federal and state environmental agencies to work cooperatively with the private sector in expediting the development, deployment, and evaluation of promising innovative environmental technologies.

In July of 1996, a resolution was adopted by the New England Governors endorsing and supporting regional efforts to promote regulatory cooperation in New England. This resolution sets the stage for a series of technology agreements to be developed and implemented by the state regulatory agencies. For the first technology agreement, signed on September 20, 1996, on-site waste water treatment and disposal technologies were selected. EPA – working with the New England Governor’s Conference Inc., the New England Interstate Water Pollution Control Commission, and the six New England states – developed a model approach to reduce permitting barriers. The six New England States, along with EPA-Region 1, New England, and the Northeast Waste Management Officials’ Association (NEWMOA) will be signing the second technology agreement for waste site assessment and cleanup technologies in March 1998.

“The new program (Interstate Regulatory Cooperation Project) will be good for the environment, by using the data collecting and analyzing talents of the entire region. And it will help the economy-especially, we believe, manufacturing, by reducing the regulatory costs of doing business in New England. We hope that this is only the start of a major effort to reduce regulatory redundancies in our region.”

–Editorial-Providence Journal Bulletin, 10/8/96

### **Identifying and Addressing Regulatory Barriers to Innovative Technologies**

Under a grant to the New Hampshire Department of Environmental Services, this project identified regulatory and institutional barriers to the permitting and utilization of innovative technologies. New Hampshire transferred lessons learned by coordinating its activities with the other New England States, the New England Governors’ Conference, interstate groups and the New England environmental business community.

### **Innovative Technologies to Address Hazardous Air Pollutants**

The Northeast Waste Management Officials’ Association received funding from EPA to identify cost-effective, flexible, and environmentally beneficial pollution prevention technologies designed to meet emissions limits for hazardous air pollutants for several source industries including wood products and paper coatings-pressure sensitive tape. Emission limits will be required in Maximum Achievable Control Technology Standards that will be applied across the New England and mid-Atlantic states, thereby facilitating market expansion for these technologies.

### **Environmentally Sustainable Technologies and Electric Industry Restructuring**

The Massachusetts Division of Energy Resources and New England Governors’ Conference received funding from EPA to assess the implementation of more energy-efficient environmental technologies and renewable energy alternatives that reduce the environmental impact of electricity generation and delivery. The project examined the role of government in promoting environmentally sustainable technologies for electric generation, delivery, and use within the six state New England region, and analyzed the potential impacts of electric industry restructuring, open retail competition, and informed customer choice on the progress of these technologies.

### **Massachusetts Innovative Technology Coordinator**

With grant funding from EPA, the Massachusetts Department of Environmental Protection (DEP) demonstrated how an Innovative Technology Coordinator position could focus agency efforts to support innovation and change the regulatory climate for new technologies. The Department recognized the key to promoting innovative technologies was dependent upon building effective relationships among disparate internal and external stakeholders - DEP permitting, policy and management staff; technology developers; municipalities; and technology users. The use of a coordinator’s position was so successful that the DEP has continued to support this position with state funds.

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– MA DEP Report to US EPA, Oct 1996

### **III.3 Efficient and Flexible Approved Methods**

Many regulatory activities require overseeing agencies to develop standard methods in order to establish guidelines for a number of different activities. While on one hand the approved methods do an excellent job of guaranteeing minimum performance levels, they can make it difficult to use new systems, technologies or methods. The New England Region has been very active in trying to develop new and more flexible approved methods designed to enhance the use of new technologies

#### **Low Flow Ground Water Sampling**

The *EPA Region I Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells*, July 30, 1996, was written to standardize the collection of ground water samples from monitoring wells, and to improve data quality and avoid excessive costs. Historically, total (unfiltered) metals samples have been collected and analyzed to determine the potential human health risk associated with ground water ingestion. However, these conventional methods often overestimated metals concentrations due to

“By using this sampling technique at hazardous waste sites, unnecessary and expensive pretreatment facilities for metals in ground water can be avoided, thereby saving thousands of dollars in remediation design, operation and maintenance costs.”

– Nancy Barmakian, Quality Assurance Officer, US EPA, New England

naturally occurring metals loading in samples. The innovative low flow technique collects ground water samples that are more representative of the aquifer quality by eliminating the need to filter samples and by reducing the occurrence of natural metallic compounds found naturally in ground water from soil particles. By using this sampling technique at hazardous waste sites, unnecessary and expensive pretreatment facilities for metals in ground water can be avoided, thereby saving thousands of dollars in remediation design, operation and maintenance costs.

#### **Immunoassay Analysis**

The immunoassay guidance, *Region I, EPA-New England Immunoassay Guidelines for Planning Environmental Projects*, October, 1996, was written to promote and provide a framework for regulatory acceptance of an innovative technology which provides same-day results for specific organic and inorganic contaminants and classes of compounds. Cost and time savings accrue by reducing, off-site sample shipments, lab costs and the need to remobilize field crews. Historically, this technology has been used to determine pregnancy in women within a few weeks from conception. It has found new application in the environmental marketplace for determination of many types of environmental contaminants.

The Naval Command Battalion Center (NCBC), Davisville, RI, is a federal facility contaminated with polychlorinated biphenyls (PCB). Often the result of localized spills, PCB contamination can be difficult to locate. Immunoassay (IA) testing was used extensively at NCBC to locate PCB contamination and has prevented the unnecessary operational and analytical costs and time from excessive excavation work. By accelerating the excavation process and minimizing the amount of soil that must be removed and land-filled, a valuable piece of property has been placed back in use.

### **X-Ray Fluorescence Analysis**

The *Region I, EPA-New England Standard Operating Procedure for Elemental Analysis Using the X-MET 920 Field X-Ray Fluorescence Analyzer*, October, 1996, was written to promote and provide a framework for regulatory acceptance of a technology that has innovative applications in environmental testing for specific inorganic contaminants. Initial characterization of a site, in terms of data collection through laboratory analysis, can be a costly undertaking. As part of the Superfund Innovative Technology Initiative, greater emphasis is placed on taking the laboratory to the site and implementing new advances in field analytical technologies. On-site field analysis technologies, such as X-ray fluorescence (XRF), can offer project managers same-day results. Consequently, field decisions are increased, field crew and equipment remobilization costs are avoided and total project time is reduced.

At the Eastern Surplus Site, Meddybemps, ME, field portable X-ray fluorescence (XRF) technology was used to extensively define metals concentrations in the soil throughout the site. Over a one month period, more than 500 soil samples were collected and analyzed by XRF for some 25 earth elements. At nearly a tenth of the cost of off-site analysis, EPA was able to obtain a complete metals profile of the entire site and pin-point any possible areas of concern.

### **Pollution Prevention Technology Application Analysis Template**

Observing a lack of accepted format or standards for assessing, comparing, or contrasting innovative pollution prevention technologies, EPA Region I's Office of Environmental Stewardship developed a model analysis "template" for assessing and comparing the properties and applicability of innovative pollution prevention technologies. This model analysis template highlights a wide range of technology data including design specifications, performance, cost, regulatory data, field track record, and lessons learned from previous applications.

This project fills a key need for technology vendors and purchasers. Vendors can use the template as an opportunity to present information on their technologies to potential customers, clients, and state regulatory and assistance programs. Potential purchasers can use it to search, examine and compare technology verification programs, obtain a referral list of customers, consultants, and others who can create a demand for the template. The National Pollution Prevention Roundtable (NPPR) is currently promoting the use of the template by tailoring it for application in various technology classes. It is also being used as a basis for reciprocity in the development of an environmental technology verification agreement among several New England and Mid-Atlantic states.

## **III.4 New Frameworks**

Often times the nature of the statutes that drive our regulatory system have inherent dampening effects on the adoption of new technologies. The reasons for this are numerous – ranging from constraints due to a single media focus or an emphasis on one particular aspect of environmental compliance. The following efforts are examples of new programs that take a multimedia approach or utilize programs not previously thought of as vehicles to promote technology, such as enforcement actions.

### **Remedial On-Site Wastewater Treatment Districts**

EPA's policies, regulations and enforcement practices in water pollution control have locked-in a technology of centralized sewer collection pipes and treatment plants to the detriment of other, decentralized treatment approaches. With funding from EPA, the Massachusetts Department of Environmental Management has

developed a detailed regulatory framework for a new concept of community-wide remedial on-site wastewater treatment districts for water quality protection. This framework examines the remediation and management functions that a district must perform, as well as, the standards which must be met in each function. This project has included an extensive outreach component in which workshops for local officials were held throughout the state.

### **Common Sense Initiative - Pollution Prevention Pilot Project**

EPA Region I's Assistance and Pollution Prevention team implemented a highly creative project designed to advance the Common Sense Initiative (CSI), created by Administrator Carol Browner as the Agency's response to criticisms that EPA has traditionally employed a fragmented, pollutant-by-pollutant approach to environmental protection. The goals for this project were:

- 1) to promote pollution prevention techniques in the metal finishing, printing, and wood products industries
- 2) to achieve environmental results by using cost-effective, common sense solutions which help facilities go beyond compliance by reducing or eliminating waste streams
- 3) to develop stronger and more productive working relationships with our partners in business and industry. In return for a commitment to implement pollution prevention practices, participating companies received free, on-site facility audits that identified pollution prevention and compliance opportunities from multi-disciplinary assessment teams.

### **Successful Pollution Prevention - Wyman-Gordon Company**

EPA Region I's Office of Environmental Stewardship used its enforcement authority under the Emergency Planning and Community Right to Know Act to have the Wyman-Gordon Company to install pollution prevention equipment as part of a Supplemental Environmental Project. In return for a reduced penalty for its violation, the company installed an acid purification and recovery system to reclaim hydrochloric acid and nitric acid from two of its pickle tanks, resulting in the recovery of 80% of those acids from the facility's waste acid stream. As a result, over 130,000 gallons per year of these acids will no longer be disposed of in a landfill as hazardous waste. This is an excellent example of how traditional enforcement authority can be guided to achieve innovative technological solutions that benefit the environment and the company.

## Case Study for Section III

### Environmental Research Corp: Working with EPA to Overcome Regulatory and Institutional Barriers

Environmental Research Corps is a Massachusetts company that produces products and systems for erosion and storm water control. Two of their primary products are the *Howland Swale* and *Biofence*. In a letter back to CEIT describing how our programs have affected their success, Chief Biologist Mark Howland writes, “The Plymouth (Technology Trade) show has produced the sale of four Howland Swales...and over 140 roles of Biofence...these were truly a result of our appearance at the show.”

Mr. Howland continues in his letter to describe how the goal of Technology Trade Shows to bring together permittees, regulators, vendors and customers to clarify the regulatory approval pathways has made it easier to get permits for his new systems:

“The shows had what I called a substantial indirect effect. The fact that both [products] were featured at the shows appears to make permitting of the products easier. Several of the projects...when appearing in front of a regulatory board, required far less time to explain...due to the fact that the board member had been to the show and seen the products and presentations. As we present about one Howland Swale a week for permitting, this increase from CEIT’s role has been appreciated. The educational values of the shows can not be discounted.”

Mr. Howland continues to describe the effects of appearing in *Technovation*, our technical bulletin highlighting groups of technologies, by writing, “In one short month since release, we have logged 251 requests for literature and sold one Howland Swale to a Horse farm in Kentucky to protect a wetland ecosystem from manure run-off.”

All of this means that better environmental products are being used more quickly, saving customers money, improving our environment and growing the economy. As Mr. Howland writes:

“With 483 Howland Swale Installations, over 30,912,000 gallons of water have been exposed to over twice the TSS removal rate than they would have had with a traditional detention basin. We have now sold over 10,000 roles of Biofence [this means] over \$600,000 dollars has been added to the depressed economic region of New Bedford and thirteen jobs have been created.”